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U. S. DEPARTMENT OF COMMERCE

PUTTING WEATHER REPORTS TO WORK

A radio talk by Mr. Arthur J. DeMars, meteorologist, Weather Bureau delivered through Station WRC and 39 other stations associated with the National Broadcasting Company, February 25, 1931.

Aviation in this country has made great strides during the last few years as you all know. We now have air transport companies carrying passengers from coast to coast and from border to border. The air mail service is no longer a dream but a firmly established method of rapid mail delivery, and the number of privately owned planes has increased phenomenally. The Atlantic Ocean has been spanned several times by airplanes and airships. The Weather Bureau has worked hand in hand with the pilots and the people who were concerned during the time this progress and development was taking place, and today it renders service to make possible the success of the transportation of passengers, the air mail lines, endurance flights made in the interests of aviation such as the transatlantic flights to and from Europe, the keeping of a plane in the air during long periods of time in order to test the stability of all its parts and the success of the manouvers of the army and navy air fleets.

As the transatlantic flights have been of so much interest to everybody, I think that you will be interested to know how the Weather Bureau has helped the pilot to choose the proper time for "taking off". Now, when a pilot contemplates crossing the ocean, he wants to know when weather conditions will be favorable for "taking off", and after leaving the coast whether or not favorable conditions will continue, and then after he will have reached the other side whether or not he will have favorable conditions to land. The daily weather charts made from reports collected from all parts of the United States, Canada, and Alaska, are supplemented by observations from ships at sea, and by observations from land stations in Europe. From this the forecaster has a picture of weather conditions over the area the plane must traverse and over the area to the westward. He then makes a forecast of weather conditions for the time from "taking-off" until the plane has reached about mid-ocean. Forecasts for the area from mid-ocean to Europe are obtained from the Meteorological Service of the country of destination in Europe. These forecasts consist of a statement of where the following conditions will be or will likely be encountered during the following 24 to 48 hours, namely, rain areas, low clouds, high clouds, fair weather areas, hail, snow, sleet, varying degrees of visibility and ceiling along the way, and a statement of what the wind directions and velocities will be at the surface and aloft. This forecast gives the pilot enough information for him to decide for himself whether or not he should fly. Such decision is always left to the pilot.

The features of meteorological service given to aviators and operators on the flying routes that have been established as suitable for air commerce consist of special route forecasts issued twice a day for 12 hour periods, and three hourly summaries of weather conditions combined with a short period forecast for the following three or four hours.

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In addition, hourly reports of weather conditions actually prevailing along every route are obtained. Therefore, any flier before he starts a trip, is given complete information as to the weather he will encounter on his trip and a forecast of any changes likely to occur before he reaches his destination.

Due to the rapid changes that occur in ceiling, visibility, ice forming conditions, wind direction and velocity and other weather phenomena that make flying hazardous at times, it is necessary to have a highly efficient communication system to collect frequent weather reports from stations along and at some distance to the sides of the airways. The airways division of the Department of Commerce has established such a system and by means of it the Weather Bureau collects by teletype hourly reports used in making up short range forecasts from which the pilots are informed of rapidly changing conditions. The necessity of short range forecasts is well illustrated by the words of a pilot who described rapidly changing conditions as follows: "The ceiling dropped so fast that I was forced to fly just above the highway, and I chased some of the automobiles off the road".

To illustrate to you just what would be received by a pilot of a mail plane leaving Newark, New Jersey, for Cleveland, Ohio, I will start by telling you the service given to the pilot before he leaves the ground. As the plane is getting fueled and checked, the pilot is furnished a sheet containing reports taken along the course from Newark to Cleveland during the previous hour. These reports show in detail, height of ceiling, visibility, wind direction, wind velocity, temperature, dew-point; and pressure readings. The pilot is also supplied with a summary of weather conditions for the area from the western borders of Illinois and Wisconsin eastward to the Ocean and a forecast to cover the period of his trip.

In the Weather Bureau Office at the field are maps showing the directions of the wind from the surface up to several thousand feet and also the maps made from the three hourly reports, both being always available to the pilot when he wishes to consult them. An example of a summary and forecast will read something like this, "The low is now central in Upper Michigan moving rapidly eastsoutheastward. Skies are overcast in the western portions of New York, Pennsylvania and Maryland, and the northeastern portions of Michigan and northern Ohio with light to moderate snow falling in all but Western New York. Ceilings are less than 1,000 feet in western Pennsylvania with low visibility and ice-hazard, but elsewhere ceilings are ample. Clear skies and fair to good visibility prevail in the balance of the area.

"Forecast for the next four hours: Snow will occur in western New York with lower ceilings and visibility; and snow will diminish in western Pennsylvania with improved ceilings and visibility and it will cease in northern Ohio, little change elsewhere". This is not the forecast for today, but merely an example of forecasts such as are given to pilots.

After the plane has been in the air for a half hour, the pilot receives the latest weather report. He has a radio receiving set tuned to a certain frequency to receive the broadcasts from the Department of Commerce radio stations. The broadcasts are repeated each hour giving changes that have taken place in the weather conditions all along the route. If a thunderstorm should form over an area directly in his path, the pilot can fly around the storm, or land in an emergency landing field until the danger has passed. These reports will enable him to fly at the most advantageous altitude as it oftentimes happens that there may be strong westerly winds up to a thousand feet and only moderate variable winds at five thousand feet, in which case flying westward at the five thousand foot altitude would most likely be chosen by the pilot.

Tomorrow, folks, I will be back again to say a few words about long period forecasts.

